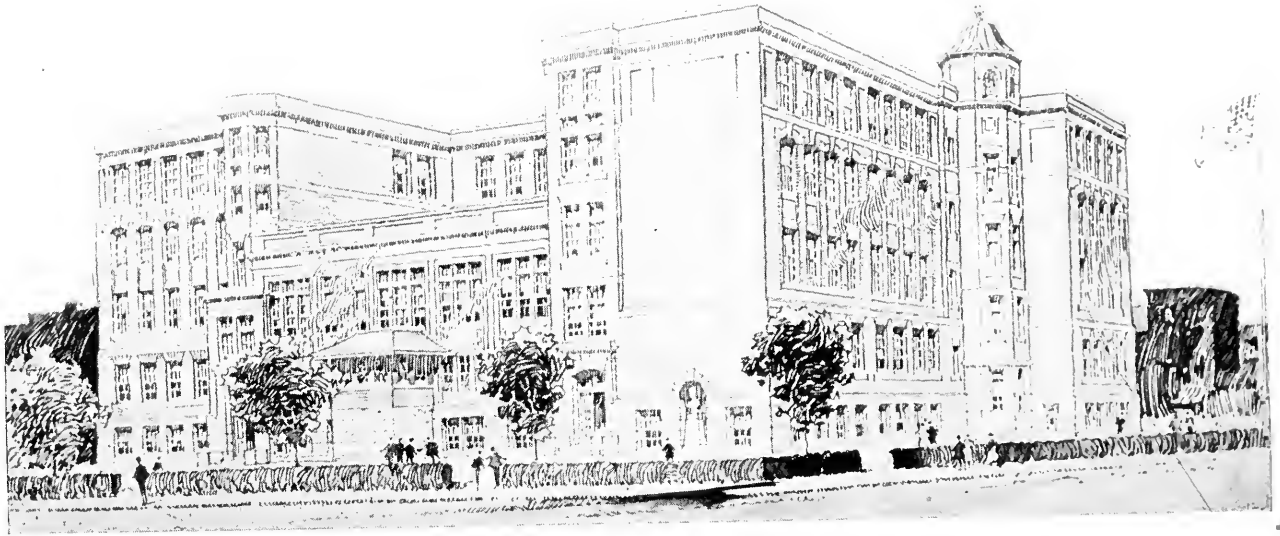
Increasing Efficiency
and
Decreasing Cost
in
School House Construction
with
Keystone Gypsum Blocks

Keystone Fireproofing Company

New York Montreal Philadelphia
Cincinnati Oklahoma



Abraham Lincoln School, Boston, Mass.

A. W. Longfellow,
Architect

Whiton & Haynes Co.,
Contractors

Flues

Heating and Ventilating

THE construction of heating and ventilating flues in school houses is one of the most important features of the interior of the building. Prior to the advent of KEYSTONE FLUE BLOCK this problem could be solved in only one of two ways—in a non-fireproof building, by wood-stud-and-lath enclosing tin or galvanized lining; or in a fireproof structure by building the flues of ordinary fireproof partition materials or brick, and applying to the inside a coat of Portland cement and sand.

In order to properly control the temperature of the school room, particularly in sudden mild weather, the heat should enter the room only at the points intended—the register openings. This efficiency has not been secured with either of these forms of construction. The use of wood-stud-and-lath with metal lining offers nothing to oppose the transmission of heat at any point of the flue from floor to ceiling, except the plastering, which being composed principally of sand, possesses no value as an insulation. Furthermore, the life of the metal flue-lining is uncertain at best, involving the certainty of repairs in time, and always presenting the danger of fire from a defective or rusted joint.

While flues built of ordinary fireproof materials are superior to those of wood lined with metal, they are extremely heavy, and as nearly all of these materials are conductors rather than non-conductors of heat, fail to solve successfully the problem of preventing heat radiation.

In either case, the cost is excessive.

KEYSTONE GYPSUM FLUE BLOCKS not only successfully meet every condition requisite in a material for this purpose, but combine substantial economy with this increased efficiency.

These blocks consist of the same formula as our standard KEYSTONE GYPSUM PARTITION BLOCKS, but are carefully moulded by hand, with a perfectly smooth, even surface on the side forming the flue. For the withes or divisions in the flues, a thinner block, having the same smooth surface on both sides, is used.

In building the flues 3″ hollow blocks should be used for ceiling up to 13′ and 4″ hollow blocks where the ceiling heights exceed 13′. For the withes, 2″ solid blocks are recommended. The blocks should be laid up in mortar composed of one part hard or gypsum cement plaster to two and one-half parts sand. The joints being carefully struck on the inside of the flues, no metal lining or cementing is required, and the outside surface of the blocks is ready for brown and finish coats of plaster—a scratch coat being unnecessary.

Aside from the important point of economy, the

Public School No. 2, Baltimore, Md.

Otto G. Simonson,
Architect

Morrow Bros.,
Contractors

advantages of KEYSTONE FLUE BLOCKS are many.

1st—They are practically *perfect non-conductors*, insuring against heat radiation. The record of the severe official fire test for the New York Bureau of Buildings is prima facie evidence of this, where, notwithstanding the intense heat of over 1800° Fahr. to which one side of 2″ solid and 3″ block partitions was exposed by direct application of flames, the outer surface remained sufficiently cool *to permit of the bare hand being held against it without discomfort.*

2nd—The inseparable bond established between the gypsum block and the gypsum mortar eliminates the danger of defective joints, and, in consequence, of fire.

3rd—The smooth surface of the blocks, with the struck mortar-joints, presents no obstructions to the free passage of heat and air, or upon which dust can lodge.

4th—The lightness in weight of this construction enables it to be used in any type of building, irrespective of floor construction.

5th—There is no danger of the inside surface cracking and falling away as must always occur in time where a cement coating is applied.

6th—The cost of KEYSTONE GYPSUM FLUE BLOCKS, set in place, is but a few cents more per square foot than ordinary partition construction. On the other hand, the difficulty and tedious-

Public School No. 11, Bayonne, N. J.

R. C. Hutchinson,
Architect

Cramp & Co.,
Contractors

ness of plastering the inside of ordinary fireproof flues causes this to cost twice as much as ordinary plastering, while metal flue lining set in place costs from 20c. to 35c. per sq. ft. In other words, KEYSTONE GYPSUM FLUE BLOCKS *reduce* the entire *cost* of this work by *from 40% to 65%*.

Public School, 59th and Race Sts., Philadelphia, Pa.

J. H. Cook,
Architect

B. Ketcham's Son,
Contractor

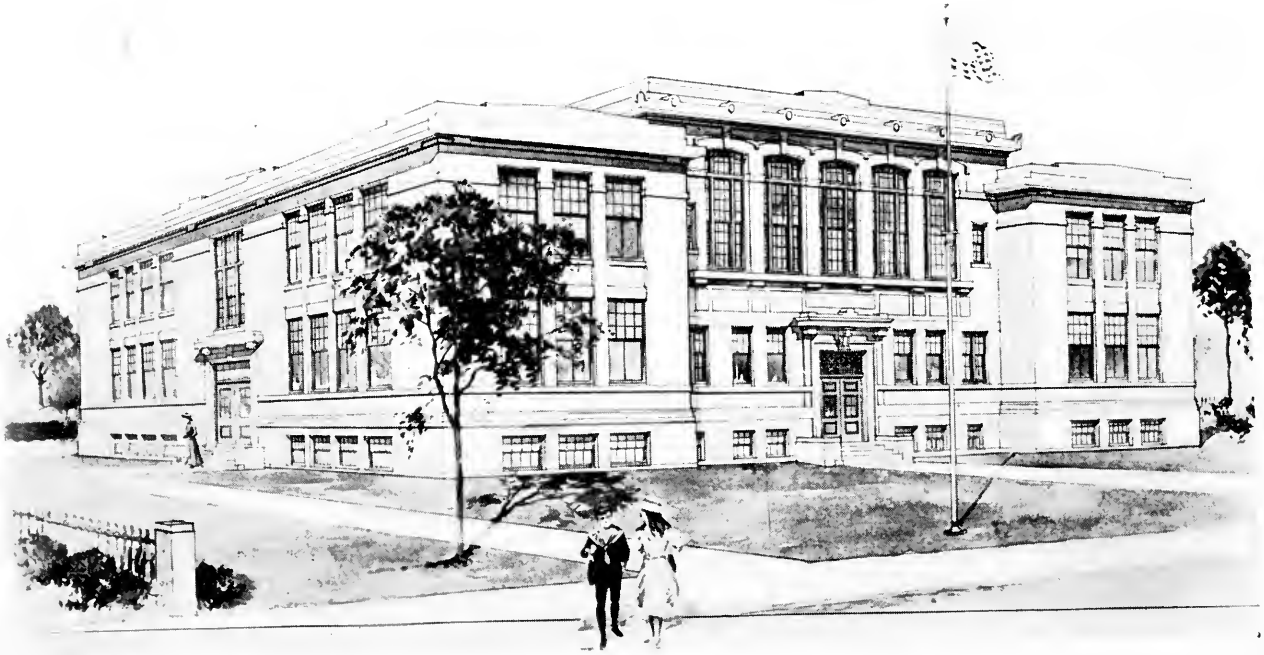
Partitions

A Foreword Regarding Non-Fireproof Schools

THE importance of the partitions in a school building equals, if it does not exceed, that of the flue construction. There is no class of building that demands every safeguard that modern fireproofing affords as much as one housing children. Fortunately, the realization of this has become so widespread that even the smallest communities are willing to sacrifice other features in their public schools, and pay increased taxes, in order to insure the safety of their children during school hours.

But there are cases, nevertheless, where the lack of funds compels the use of non-fireproof construction, and in spite of the architect's convictions, he is forced to design his building to come within the available money.

Actual fires have shown that the greatest element of danger in a non-fireproof building is the wood-stud-and-lath partitions. The surfaces of the heavy floors and plastered ceilings will resist the attack of flames for a considerable time, as there are no angles to start the combustion; but in the angle of the floor and ceiling with the partition, the fire finds the vulnerable point to attack. As soon as the flames penetrate the joint between the floor and baseboard, the air-space between the lath forming the partition acts as a flue, sucking the fire up through the partitions, and causing it to



Lincoln School, Summit, N. J.

H. P. A. Montgomery,
Architect

American Concrete-Steel Co.,
Contractors

mushroom out above the plastered ceiling and attack the floor joists above. Hence the usual newspaper accounts of fires that "enveloped the entire building in flames five minutes after the smoke was first discovered."

It is impossible to underestimate the value of fireproof floor construction; but when its cost is prohibitive, the building can be made slow-burning, and *practically* fireproof, by the use of KEYSTONE GYPSUM BLOCK PARTITIONS. The extreme lightness of these blocks permit their use on wood floors without overloading, and while their cost, after taking the saving in plastering into consideration, is about 15% greater than wood stud partitions, this is in most cases *more than offset* by the economy in the use of KEYSTONE FLUE BLOCKS.

There are three questions that must be conclusively answered regarding any partition material as a precedent to its consideration for school house construction, viz:

Is it *fireproof* in every sense that the word implies?

Is it *sound-proof*?

Does it form a *rigid* partition?

All three of these points are of equal importance.

The following pages not only offer convincing answers to each of these questions, but demonstrate the additional advantages of economy and lightness to be secured by the use of KEYSTONE GYPSUM BLOCKS.

New England Conservatory of Music, Boston, Mass.

Wheelwright & Haven,
Architects

Fire-Resistance

KEYSTONE GYPSUM BLOCKS consist of Nova Scotia gypsum, the purest ever discovered, possessing a peculiar chemical property that distinguishes it from any gypsum found elsewhere, and that gives it an unequalled value both as to strength and imperviousness to heat. This rock is mined from our own deposits, and calcined by a special process that developes in it the highest degree of fire-resistance that can be obtained in any material used for this purpose.

Nearly all of the materials in use to-day for fireproofing purposes, while incombustible, fail entirely in the realization of the true meaning of the word "fireproof" as applied to modern building construction, as they have no value as *fire-resistants*, or non-conductors of heat, and are seriously injured or totally destroyed by the application of water during or after a fire.

KEYSTONE GYPSUM BLOCKS, on the other hand, are not only incombustible, but afford the maximum of efficiency in every feature essential to complete fire-protection.

They prevent the passage of nearly all warmth, the most severe tests showing heat transmission of only 5%.

They have a co-efficient of expansion under heat of practically zero, insuring against destruction or even injury by expansion, the almost universal cause of the failure of clay tile, concrete, etc., in every actual fire.

The bond between the block and the mortar is so nearly perfect that no weakness develops in the joints under the most severe stresses of fire or water.

They successfully resist the action of a stream of water during or after a fire.

They form a bond with the plaster so homogeneous that the finish coat, on the reverse side from the fire, is not even surface-cracked, and in many cases, the plastering has remained *intact on the fire side* till the water has been applied.

The results of every test, and every *actual fire* to which KEYSTONE GYPSUM BLOCK PARTITIONS have been subjected during fifteen years, have shown that, irrespective of the severity of the fire, *replastering* on the *fire side only* was necessary to restore the partition to its original condition.

NOTE: Test booklet, containing verbatim reports of the official tests for the Bureaus of Buildings of various cities, and describing actual fires through which KEYSTONE BLOCKS have passed, will be gladly mailed upon request. This booklet will amply repay the time spent in its perusal.

Sound-Deadening

THE development of the highest mental efficiency demands freedom from distraction. This is particularly emphasized in children, whose active and untrained minds instinctively seek diversion as a relief from the close application of school work. It is obvious, therefore, that the use of a material for partitions in school houses, that will effectually prevent the communication of sounds and noises from adjoining rooms, is of the greatest importance.

KEYSTONE GYPSUM BLOCKS are the most nearly perfect non-conductors of sound of any material on the market, that can be used for this purpose.

Prior to the selection of the partition material for the well-known New England Conservatory of Music, Boston, in 1902, and because of the importance of sound-proofing in a building of this character, a comparative test was conducted by Professor C. L. Norton, of the Massachusetts Institute of Technology, to determine the relative efficiency as non-conductors of sound, of every known form of partition construction. This test was probably the only one of anywhere near the scope, and was certainly the most exhaustive, that has ever been made, before or since, to determine the sound-deadening properties of materials; and as a result of it, KEYSTONE GYPSUM BLOCKS were used for the partitions throughout the Conservatory.

Public School, Nutley, N. J.

H. King Conklin,
Architect

American Concrete-Steel Co.,
Contractors

This unequalled feature of KEYSTONE BLOCKS is not due solely to the fact that they consist of gypsum, but to the texture and consistency that is peculiar to this material. This has been clearly shown by the fact that other blocks, in which plaster or gypsum are used in varying proportions, do not possess anywhere near the same value as non-conductors of sound.

KEYSTONE BLOCKS occupy, to-day, the same distinctive position in this respect, that they did when Professor Norton's test was made in 1902.

Rigidity

A school building demands a partition construction of greater rigidity than almost any other class of building, in order to safely carry the weight of the blackboards; the more particularly so in that in some cases blackboards are hung upon but one side, affording no counter-balance to the pull on the partition.

KEYSTONE GYPSUM BLOCKS form the strongest and most rigid partition, for three reasons:

1st. The blocks themselves are not only strong, but possess an element of *toughness* that makes them far superior in ultimate strength, to a hard, brittle material.

2nd. KEYSTONE BLOCKS containing from 2½ to 3 square feet each, a partition built of them contains from 50 to 66⅔ per cent less joints. The increased rigidity which this imparts is obvious.

3rd. The affinity of gypsum for gypsum is so remarkable that a bond is secured between the block and the gypsum cement mortar that is nearly homogeneous, the joints having a breaking strength that is but little less than the blocks themselves.

It has been found by experience that, for a given ceiling height, KEYSTONE BLOCKS can be safely used 1 inch less in thickness than would be necessary with other materials.

The fastening of blackboards to the partitions is also simplified, and greater safety insured by the use of

KEYSTONE BLOCKS. This can be accomplished in either one of two ways. The toughness of the blocks enables them to hold nails or screws; but if this method is followed, where heavy blackboards are to be carried, courses of solid KEYSTONE BLOCKS should be built in where the top and bottom lines of fastening will occur, so as to avoid the possibility of the nails or screws finding the cores or air spaces in the block. Or, as it is possible to cut or drill through KEYSTONE BLOCKS the same as wood, without danger of cracking or splintering, T-Anchor-bolts can be used, the T head taking the pull on the reverse side of the partition. The latter is generally considered the most practical method, as it eliminates the additional cost of the solid blocks and makes it unnecessary to establish the exact height or position of blackboards, until they are hung.

High School, Hoboken, N. J.

John T. Rowland, Jr.,
Frank Eurich, Jr.,
Associate Architects

W. H. & F. W. Cane,
Contractors

Lightness

THE feature of lightness is desirable in a fire-proof building, where the saving in dead load often permits the use of a lighter beam than would otherwise be required, or the reduction of the total section of metal in concrete reinforcement; and *it is a necessity* if fire-proof partitions are to be used on wood floor construction.

KEYSTONE GYPSUM BLOCKS are the *lightest*, first-class fire-proofing material on the market. The following is a table of standard sizes and weights:

		Weight per sq. ft.
1½	inch hollow-back (furring)	4¼ pounds
2	inch hollow-back (furring)	5 pounds
2	inch solid	8 pounds
3	inch solid (roof blocks)	13 pounds
3	inch hollow	8½ pounds
4	inch hollow	10 pounds
5	inch hollow	13 pounds
6	inch hollow	15 pounds
8	inch hollow	18 pounds

Economy

WHILE the care and supervision given to the manufacture of KEYSTONE BLOCKS (which begins with the selection of the gypsum rock at our Nova Scotia mines and is followed through all the subsequent processes of transportation, storage, crushing, calcining and mixing) makes them a trifle higher in first cost than some other fire-proof materials, they produce the *most economical finished partition.* Their extreme toughness practically eliminates all waste through breakage; they can be sawed like wood to break joints, fit out around openings, etc., making every piece usable. Their lightness, combined with the greatly increased area to each block, permits of more than double the amount of work being produced daily by each mason. The fewer joints in a partition built of them, reduces the mortar by from 50 to 66⅔ per cent, and they save in the cost of plastering, as every block is perfect in shape and thickness, and they can be erected plumb and true to ½ inch grounds, necessitating only a light brown and a finish coat of plaster.

THE vital importance of non-conductivity in any fire-proofing material used for column protection can be more clearly realized when it is considered that a temperature of 800° F. weakens steel 10 per cent, and 1700° F. causes it to lose 50 per cent of its efficiency.

In nearly every case, severe fires have demonstrated the inadequate protection to the column afforded by clay tile and other similar materials, which have failed for two causes:

1st. These materials are nearly all conductors instead of non-conductors, offering little or no resistance to the transmission of heat to the metal that they are intended to protect, which quickly loses its efficiency under the rapid rise in temperature and causes a deflection of the girders that it supports, injuring and often causing the total collapse of the floor arches. The result of the tests upon clay tile, conducted by Mr. C. L. Humphreys, at the Underwriter's Laboratories in Chicago, and published in Bulletin No. 370, of the U. S. Geological Survey, showed that the transmission of heat through 5 inch clay tile, was 13 per cent or *nearly three times the conductivity of a 3 inch* KEYSTONE BLOCK.

2nd. The co-efficient of expansion under heat, in materials of this character is so high, that the covering often buckles and falls from the column even before sufficient heat has been comunicated to the steel to seriously impair its strength.

Keystone Gypsum Flues in Course of Construction

Actual photograph taken during construction of Hoboken High School

KEYSTONE GYPSUM BLOCKS are the most efficient column protection of any material on the market. Every test and every actual fire that they have passed through has proven this conclusively.

With a conductivity of only 5 per cent it would require the impossible temperature of 16,000° F. in a building to cause the column to be heated to 800° or the point causing a 10 per cent loss of efficiency in the steel.

And as there is *no expansion whatever* with KEYSTONE BLOCKS, the protection remains firmly in place, under any and all conditions.

THE same quality that gives to KEYSTONE GYPSUM BLOCKS their unequalled efficiency as non-conductors of heat, produces a like result in enabling them to resist the transmission of cold. This has been determined by liquid air tests, and by actual experience in the use of these blocks for insulation in cold storage warehouses.

The use of KEYSTONE GYPSUM FURRING BLOCKS for wall furring results in a building that is warmer in winter and cooler in summer, than can be secured with any other material.

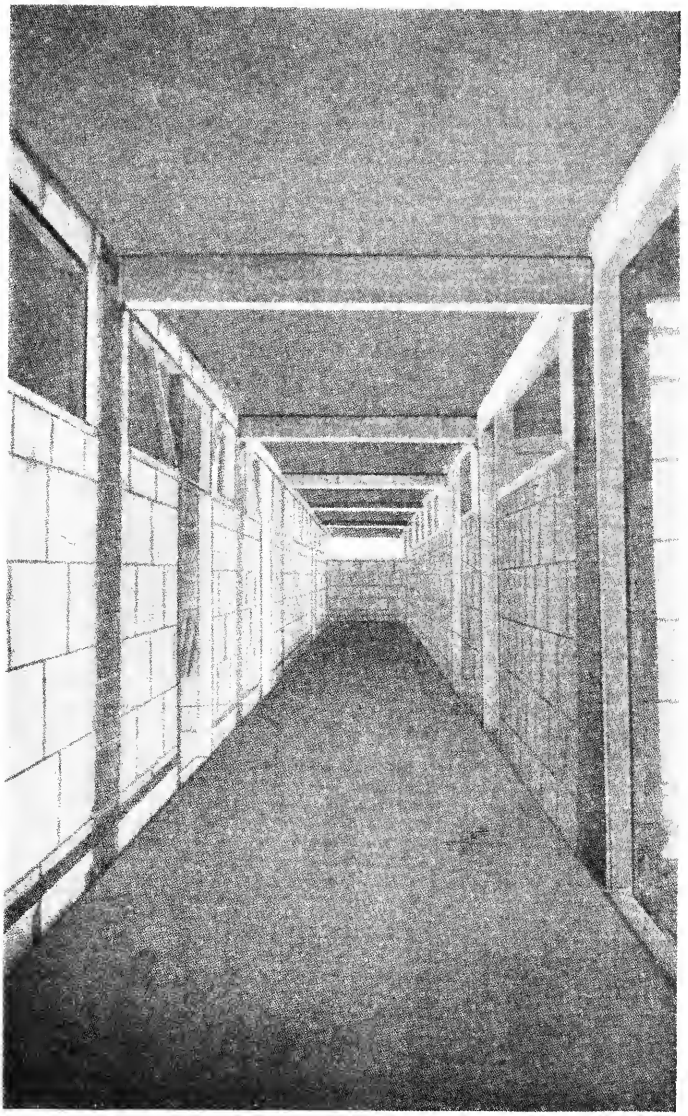
And as these blocks are made with hollow backs, they afford the maximum air space with a minimum area of contact with the wall.

WE prefer, whenever practicable, to bid upon KEYSTONE GYPSUM BLOCKS erected in place and left ready for plastering. This method not only permits us to prove convincingly the economy in their use, but carries to the architect and owners our *unqualified guarantee* against any defects in materials or workmanship not for one or two years, but as long as the building stands.

Plans sent to any of our sales offices at our expense, will be promptly returned with a bona fide bid, together with such suggestions as to the specification for the work as our wide experience may enable us to offer, with a view to increasing its efficiency or decreasing its cost.

Fifteen years experience in the erection as well as the manufacture of KEYSTONE BLOCKS has enabled us to build up a field organization that has no equal in this country, and the employment of which not only insures to the architect the highest standard of workmanship and the maximum speed, but a hearty co-operation in meeting promptly and successfully the many small problems and details that arise on every building, and which cannot be foreseen.

Our Eastern plant, at Chester Pa., is the largest factory of its kind in the world. We are therefore always in a position to make prompt shipments, a large reserve stock of standard sizes being carried to guard against the possibility of accidents.



Corridor Partitions built of Keystone Gypsum Blocks

In addition to the careful supervision given to the manufacture of materials entering into KEYSTONE BLOCKS, the blocks themselves are carefully inspected at each process. It is this rigid inspection that preserves the well-known uniformity of quality that has always been characteristic of this material. Our immense drying apparatus, the capacity of which is always maintained in excess of the maximum output of the moulding plant, enables us to dry every block thoroughly before it is shipped. Experienced inspectors examine each car of blocks as it is drawn from the dryers, safeguarding against blocks being loaded for shipment that have not had every pound of moisture extracted.

For fifteen years, the KEYSTONE policy has been "Satisfaction before Profit", the results of which are shown by the fact that, almost without exception, every architect who has ever used KEYSTONE BLOCKS continues to specify them for all of his work.

Specifications

For

Flues, Partitions, Column Covering, Wall Furring

In

School Buildings

FLUES: Construct all heating and ventilating flues, where shown on plans, of KEYSTONE GYPSUM FLUE BLOCKS. For the walls of flues, 3″ hollow blocks shall be used where ceilings do not exceed 13 ft. in height, or 4″ hollow blocks for ceilings over 13 ft. These blocks shall have a smooth surface on the side within the flue, and shall be keyed for plastering on the outside.

2″ solid blocks, having this smooth surface on both sides, shall be used for the withes. The walls of flues and the withes shall be built simultaneously, bonded firmly together by breaking joints and left ready for brown and finish coats of plaster on the outside surfaces.

The joints shall be carefully struck and pointed on the inside of all flues, leaving no projections of mortar.

These blocks shall be laid up in mortar composed of one (1) part of gypsum cement plaster, equal to "Victor" or "Keystone", to two and one half (2½) parts clean sharp sand (measured by bulk) thoroughly mixed. No mortar shall be re-tempered.

PARTITIONS: Construct all partitions throughout, including skylight curbs and wall of pent houses, of KEYSTONE GYPSUM BLOCKS of thicknesses marked on drawings or as follows: for partitions not over 13 ft. in height 3″ hollow; from 13 to 17 ft., 4″ hollow; and where over 17 feet, 6″ hollow. Form all pipe chases and ducts, except those in brick or concrete walls, in same manner as partitions, using 2″ solid or 3″ hollow blocks. Partitions to start on rough floors and to be firmly wedged against the under side of ceiling above.

All to be erected in a thoroughly workmanlike manner, plumb and true, breaking joints, bonding corners and left ready for brown and finish coats of plaster.

This work shall be laid up in mortar composed of one (1) part gypsum cement plaster of a quality equal to "Victor" or "Keystone" to three (3) parts clean, sharp sand, thoroughly mixed. No mortar shall be re-tempered.

COLUMN COVERING AND PILASTERS: Cover all exposed interior columns, and form pilasters as per details, with 2″ solid KEYSTONE GYPSUM

BLOCKS, laid up in the same mortar as specified for partitions, with all corners firmly bonded, and left ready for brown and finish coats of plaster.

WALL FURRING: Furr all exterior walls, where shown on drawings, with 2″ hollow-back KEYSTONE GYPSUM FURRING BLOCKS; this furring shall be set tight against walls, and shall be fastened to same, as often as necessary to make a thoroughly first-class job, by 20 d nails driven into the brick-work, or by building in headers of the same blocks secured to the wall by mortar.

This work shall be laid up in the same mortar as specified for partitions, with joints broken and all angles bonded, left ready for brown and finish coats of plaster.

Where furring is shown on drawings to be free-standing, use the same thickness of block and erect in the same manner as required for partitions; or 2″ solid blocks may be used for free-standing furring providing that anchors have been built into the wall at proper intervals to secure the furring.

BOOK TILE: For all mansards or other sloping roofs and dormers, set 3″ KEYSTONE GYPSUM ROOF BLOCKS laid dry on T-irons, which shall be spaced 24½″ on centres and shall be furnished and erected ready to receive blocks, by the steel contractor. After being set dry, these blocks shall be grouted by pouring a thin mixture of pure calcined gypsum and water into all joints.

(Insert in Carpenters' Specification)

The carpenter shall furnish the rough frames or bucks for all openings in partitions, etc., and shall set same in place, properly plumbed ready for the partition work. Bucks to be the exact width of abutting partition block by 3 inches and to have ½" x3½" grounds nailed thereon to receive the ends of the blocks. Or bucks may be used 1" greater in width than the block, and grooved in ¾" to receive the end of block and leave ½" grounds on either side.

(Insert in Plastering Specification)

The partitions, column covering and wall furring are all to be of KEYSTONE GYPSUM BLOCKS, and require but one coat to bring up to ½" grounds ready for the finish coat.

(Insert in Plumbing and Electrical Specification)

This contractor shall have all pipes (or electric conduits) that run in partitions or furring properly put in place ahead of the partition work, so that the contractor for the partitions shall be able to fit his material up to and around same in a workmanlike manner. Any cutting or repairing of partitions or furring made necessary by failure to do this, or by defective work or alterations, shall be done by the partition contractor at the expense of the plumbing (or electrical) contractor.

Some of the School Buildings

in which

Keystone Gypsum Blocks

Have Been Used

NAME	LOCATION	ARCHITECT
Abraham Lincoln School	Boston, Mass.	A. W. Longfellow
Samuel Adams School	East Boston, Mass.	Brigham, Coveney & Bisbee
Public School, 23rd and Cambria Sts.	Philadelphia, Pa.	J. H. Cook
Public School, 59th and Race Sts.	Philadelphia, Pa.	J. H. Cook
Public School	Millville, N. J.	W. W. Slack
Holy Cross Academy	Washington, D. C.	T. H. Poole & Co.
Lincoln School	Summit, N. J.	H. P. A. Montgomery
Bowditch St. School	New Bedford, Mass.	L. E. Destremps
Ohio Ave. School	Atlantic City, N. J.	Seymour & Paul A. Davis
School No. 2	Baltimore, Md.	Otto G. Simonson
Public School	Riverton, N. J.	Heacock & Hokanson
Mayflower School	New Rochelle, N. Y.	W. T. Towner
Wyoming School	Milburn, N. J.	R. C. Hutchinson

NAME	LOCATION	ARCHITECT
Public School	Kingsland, N. J.	O. Rogstad
Ward 9 School	Fall River, Mass.	L. G. Destremps & Son
Notre Dame School	Baltimore, Md.	Thos. C. Kennedy
St. Agnes School	West Chester, Pa.	Ballinger & Perrot
Country School for Boys	Baltimore, Md.	Parker, Thomas & Rice
School No. 60	Baltimore, Md.	Archer & Allen
Andover Theological Seminary	Cambridge, Mass.	Allen & Collens
State Normal School	Oswego, N. Y.	Franklin B. Ware, State Architect
School No. 11	Bayonne, N. J.	R. C. Hutchinson
Lincoln School	New Brunswick, N. J.	Rowland & Eurich
Lord Sterling School	New Brunswick, N. J.	Rowland & Eurich
High School	Hoboken, N. J.	Rowland & Eurich
Public School	Nutley, N. J.	H. King Conklin
St. Joseph's School	Jersey City, N. J.	Bruce P. Kitchell
Winsor School	Boston, Mass.	R. Clipston Sturgis
Black Rock School	Bridgeport, Conn.	C. T. Beardsley, Jr.
Public School	Bogota, N. J.	Rowland & Eurich
Public School	Haverstraw, N. Y.	F. E. Estebrook
Public School	Schenevus, N. Y.	W. T. Towner
St. Ann's School	West Albany, N. Y.	M. L. & H. G. Emery

NAME	LOCATION	ARCHITECT
Public School	Hamburg, N. J.	W. T. Towner
Ottawa University	Ottawa, Canada	A. O. Von Herbulis
Harvard Medical School	Boston, Mass.	Shepley, Rutan & Coolidge
New England Conservatory of Music	Boston, Mass.	Wheelwright & Haven
Lowell School	Brookline, Mass.	Shepley, Rutan & Coolidge
Putnam School	Jamaica Plain, Mass.	Andrews, Jacques & Rantoul
Norman St. School	Boston, Mass.	Everett & Mead
Washington Allston School	Boston, Mass.	Stickney & Austin
High School	Chester, Pa.	Seymour & Paul A. Davis
Protectory for Boys	Protectory, Pa.	Wilson, Harris & Richards
Notre Dame Convent	Montreal, Quebec	Marchand & Haskell
McKinley Manual Training School	Washington, D. C.	Hornblower & Marshall
		Snowden Ashford, Municipal Architect

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